AN OPERATION FOR INGUINAL HERNIA.

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THE accompanying drawings have been made for me from studies of the anatomical findings at operations for hernia during the past few months. These drawings illustrate my interpretation of the essential details of Bassini's operation for inguinal hernia.

In all ordinary cases of inguinal hernia, I have found this method of exposure and suture of the hernial sac and the method here described of repair of the abdominal wall satisfactory. I have never yet found it necessary or advisable to excise the veins of the cord. I have occasionally in children not transplanted the cord, and under certain conditions have not transplanted it in adults. It seems to me of comparatively little importance whether the cord is or is not transplanted. I am more and more inclined not to transplant it. I have utilized the fascia of the rectus abdominis a few times to reinforce the abdominal wall above the inner end of Poupart's ligament, as illustrated by Halstead. The elaborate method of suture used by Halstead seems to me, excepting in unusual cases, unnecessary. The simple suture described here is efficient in all ordinary cases of inguinal hernia.

The patient is in bed two weeks, on a bed-rest the third week, and out of bed the fourth week. A bandage is worn for one month, after being up and about, for the comfort it affords. The operation is as follows:

An oblique incision is made sufficient in length to expose readily the situation of the internal and the external abdominal rings. The few bleeding vessels are clamped and immediately ligated. The external abdominal ring is exactly developed by a few strokes of the knife and blunt dissection. (Fig. 1.)

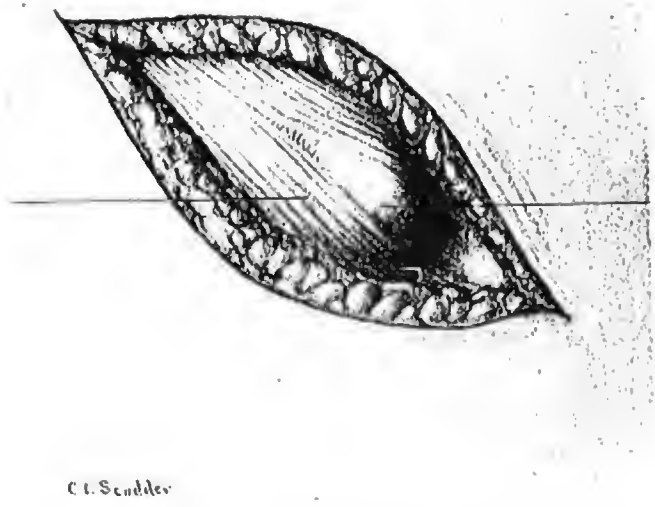

FIG. 1.—Oblique incision through skin and superficial fascia down to the fascia of the external oblique muscle. Note the external abdominal ring made apparent by slight bulging caused by full hernial sac.

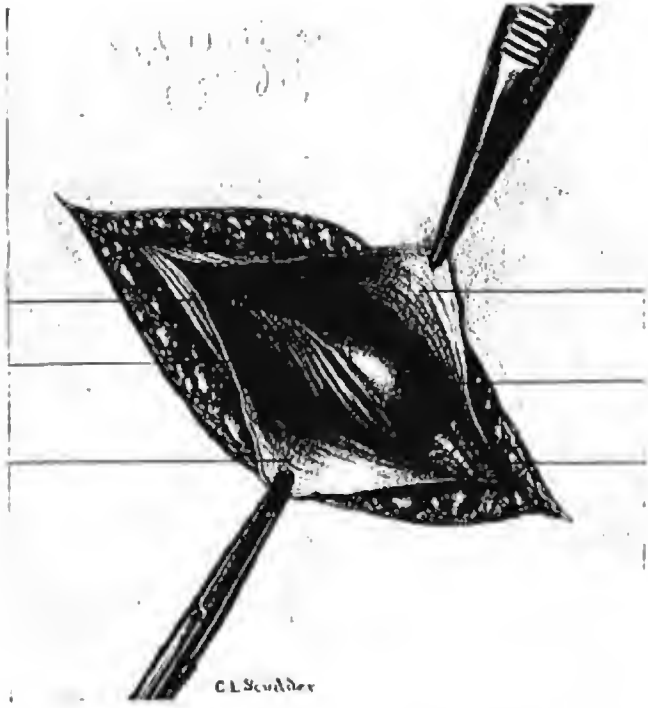

FIG. 2.—Oblique incision in line of fibres of the external oblique fascia. External oblique fascia freed from parts beneath. Note fibres above of internal oblique, conjoined tendon, below well-developed cremasteric fibres, bulging sac of hernia, cord showing at inner angle of wound.

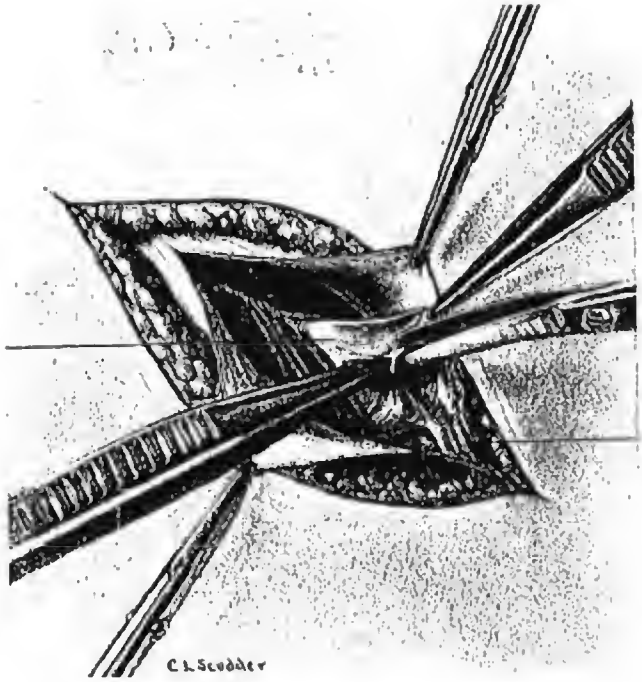

FIG. 3.—The sac of the hernia has been isolated sufficiently and raised by forceps. Note scissors opening the sac, cord in lower angle of wound.

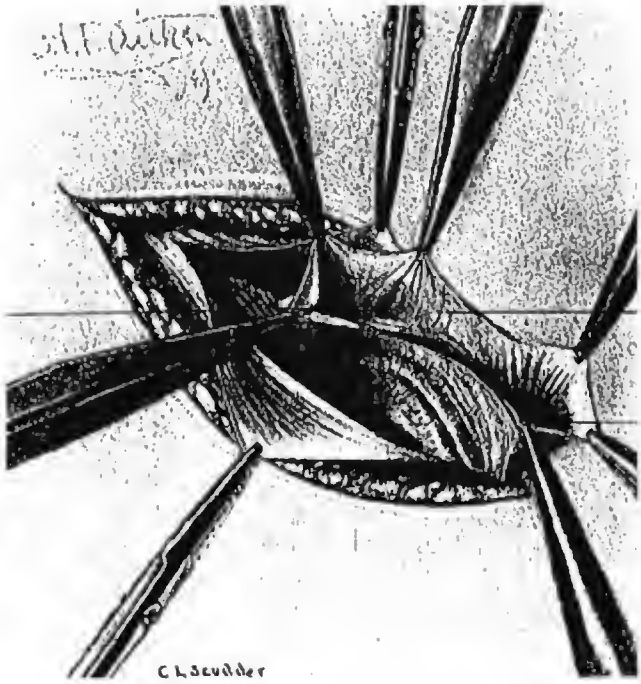

FIG. 4.—The sac of the hernia has been opened. Note the interior of the sac leading towards peritoneal cavity above and to the scrotum below. Note the cord posteriorly to the sac and the dotted line across the sac indicating the line of section for further isolation of the peritoneum.

The external oblique fascia is divided parallel with its fibres and freed by blunt gauze dissection from the parts beneath for about two fingers' breadths from the cut edges. The lower border of the internal oblique muscle, the sac of the hernia, the cord covered in part by the cremaster muscle and fascia are thus exposed to view. (Fig. 2.) The cremaster muscle may be well developed, as is indicated in the drawing, or it may be poorly developed and appear as a thin fascia with a few muscular fibres scattered through it. When the muscle is well developed, it may be utilized in closing the abdominal wound, as is here illustrated.

The cremaster is split parallel to its fibres and separated from off the sac and cord, and the sac developed by blunt dissection with fingers and gauze. The sac is thus more clearly exposed to view. The sac is held by dissecting forceps and opened by knife or scissors. (Fig. 3.) The sac is emptied of its contents. This step is facilitated by the Trendelenburg position, complete anæsthesia of the patient, and a gauze sponge thrust into the sac and cautiously withdrawn. If any intra-abdominal organ (intestine, omentum) is found adherent to the interior of the hernial sac, it should be carefully freed and all bleeding checked.

The sac is divided transversely down to the cord and its vessels. The line of posterior division of the sac over the cord is indicated in Fig. 4. After dividing the peritoneum, the separation of cord from sac is very greatly facilitated by blunt sponge dissection. The proximal part of the sac is isolated (*a*) from the cord and (*b*) from the abdominal muscles (the internal oblique, conjoinded tendon) in order to facilitate the placing of the peritoneal suture. It is important to make the isolation of the neck of the sac complete in its whole circumference, so that the subsequent suture will be an effectively placed one.

The commonly used purse-string suture, even if applied with transfixion of the neck of the sac, may slip. This occurred to me some years ago. It fortunately happened before the outer wound was closed, so that a secure suture was immediately

placed. Since that time I have used the suture illustrated in Fig. 6. When the sac is very thin walled, a purse-string suture securely applied will serve every purpose. The distal portion of the sac (the scrotal part), if such exists (Fig. 5), I have ordinarily disregarded, except to curette gently or to wipe over its inner surface with gauze. It is unnecessary to remove it in most cases. If it is thick and extensive, it is well to excise it. If it is left *in situ*, no suture is taken in its mouth. The cavity of this sac is probably completely obliterated. I have never seen a hydrocele or cyst follow this method of treating the undissected distal portion of the hernial sac.

Traction downward upon the proximal portion of the hernial sac and retraction of the tissues (internal oblique, cremaster, etc.) at the upper angle of the wound, together with traction downward upon the cord, facilitate suturing the peritoneum (Fig. 6). I have used the continuous loop or hemstitching suture taken with chromic gut and a curved needle. (Fig. 6.)

The cord and distal portion of the sac are now lifted by blunt dissection from their bed, if it is decided to transplant the cord, and are together held aloft by retractors. (Fig. 7.)

The next sutures are placed as indicated in Fig. 7. It is well to avoid including within the suture the nerve in the lower border of the internal oblique. I always place one or two sutures external to the spot where the cord comes through the peritoneum (Fig. 7) and superficial to the suture of the neck of the sac. These two sutures preclude the possibility of a recurrence of the hernia at this particular place. The remaining sutures are placed so as to lie beneath the uplifted cord. These interrupted sutures include the lower border of the internal oblique and conjoined tendon, the cremaster muscle and fascia, and Poupart's ligament. (Fig. 7.) The sutures are tied securely without constricting the muscular tissues. (Fig. 8.)

The cord is placed upon the tissues approximated by this series of sutures, and the external oblique fascia is closed over the cord by a continuous chromic catgut suture, taken as illustrated in the drawing (Fig. 9), with a loop or hemstitch. The

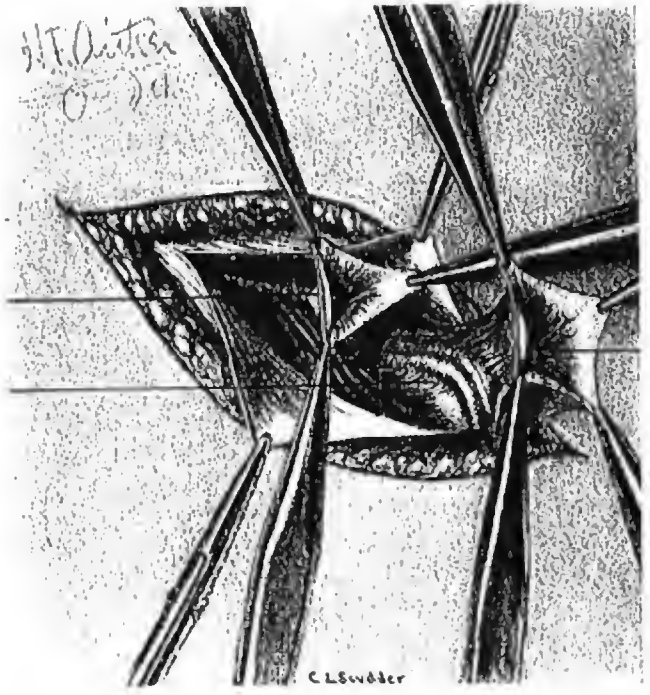

FIG. 5.—The peritoneal portion of the hernial sac has been completely isolated; likewise the scrotal portion. Traction towards the symphysis pubis upon the peritoneal upper part of the sac facilitates proper placing of the sutures.

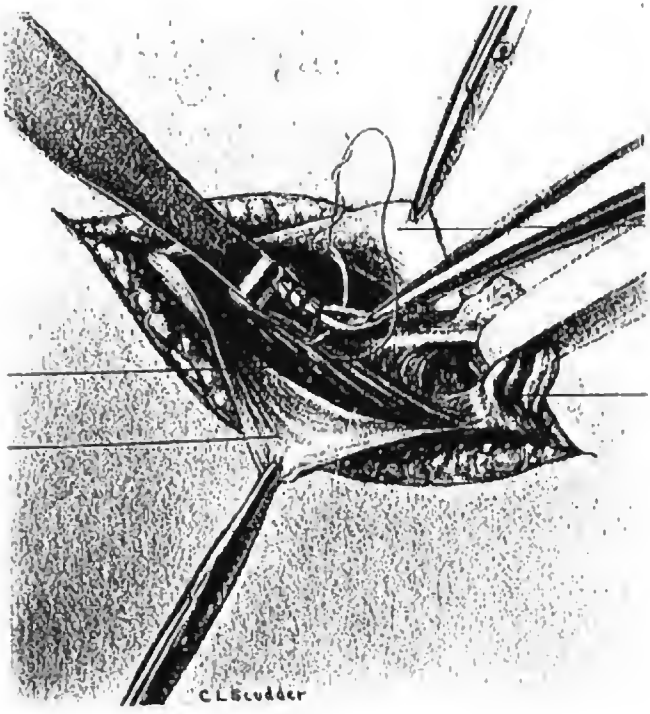

FIG. 6.—The suture is being taken through and across the neck of the sac. Note retractor keeping internal ring region well in view. Note lifting of cord by gauze-tape.

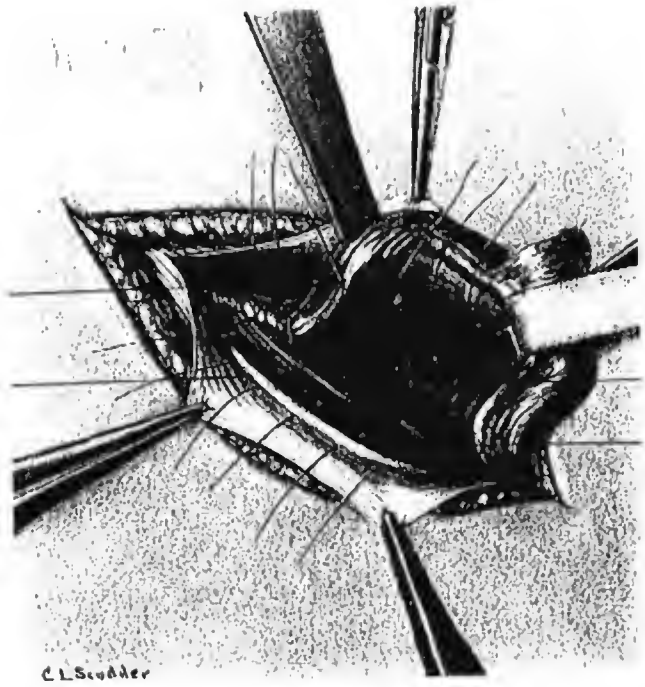

FIG. 7.—Cord well raised, with all cord structures, from inguinal canal. Note suture placed beneath cord passing through conjoined tendon cremaster and Poupart's ligament. Note separation of inner part of divided fascia of external oblique.

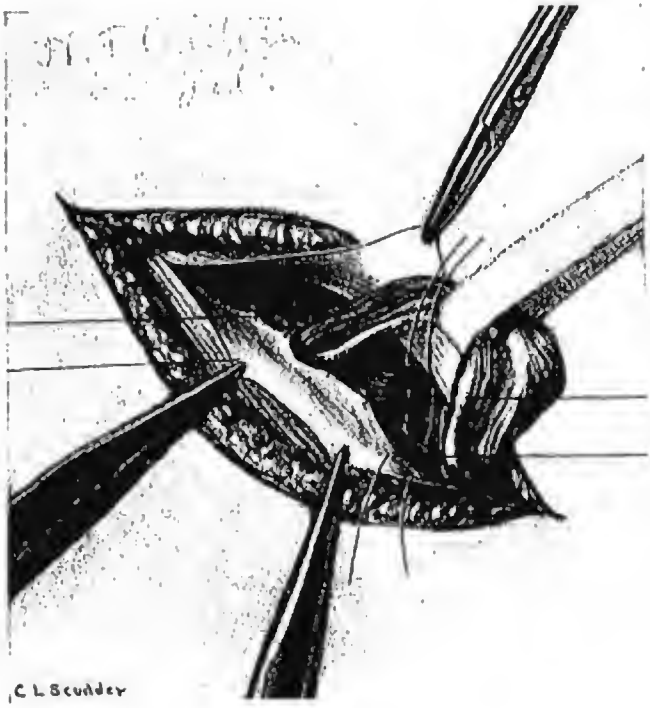

FIG. 8.—Sutures above and below the cord tied excepting two.

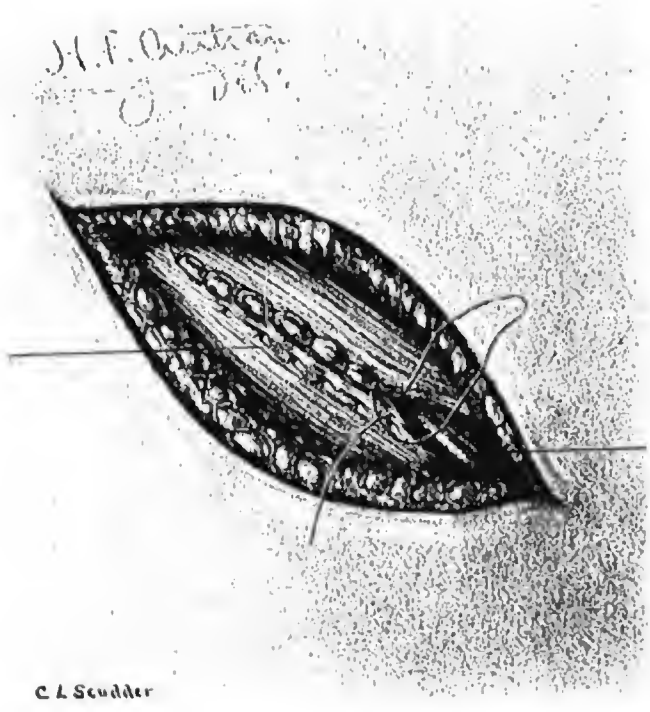

FIG. 9.—Suture of the external oblique fascia above the cord.

fascia is thus not only approximated, but there is a definite overlapping or coaptation of the two layers of fascia as by the mattress suture. Mayo has called attention to the security of the mattress suture taken transversely in umbilical hernia, and Halstead to the firmness of a wound closed by the mattress suture in cases of inguinal hernia.

The superficial fasciæ are next approximated, and with them the subcutaneous fat tissue, by interrupted or continuous fine chromic catgut sutures. The skin is closed by silkworm gut, either cutaneously or subcutaneously placed. All blood and moisture are carefully wiped from the suture creases and skin. A dry sterile gauze dressing fastened with collodion is applied.

I think no especial dressing of a wound of the kind described above has any advantages over the simple dry sterile gauze. I have used, and have seen used, silver foil, ointments, pastes, and powders. I have seen no advantages over the dry gauze dressing. I think that the two factors, other things being equal, which assist or favor the healing of a hernial wound are absolute hæmostasis and a minimum of trauma (by traction), to the skin edges of the wound. Trauma to the skin may be avoided by an ample cutaneous incision.

So important is absolute hæmostasis, that I not only ligate every tiny bleeding point in the wound, but I apply a ham splint to the leg of the operated side, that the spica bandage applied to hold the dressing may exert a maximum of pressure upon the wound during the first twelve or twenty-four hours. The splint is then removed. There is no pressure exerted upon the region of the groin by a spica bandage if the patient is permitted to flex the knee of the bandaged side. A broad band of adhesive plaster is used by some operators to secure the dressing and maintain pressure. Adhesive plaster is dirty, disagreeable, and ordinarily ineffective.

In enumerating the facts which seem to me important in the operation for the cure of an inguinal hernia, I would include the following: An ample cutaneous incision; absolute

hæmostasis; an anatomical dissection of the parts concerned, so that every structure is clearly recognized; the complete isolation of the neck or abdominal portion of the sac; the complete emptying of the sac of both adherent and non-adherent contents; the suture of the hernial sac at the level of the peritoneum of the anterior abdominal wall; the exact suture of the abdominal wall superficial to the peritoneal sutures, including always one or two sutures placed over and above the sutured sac; the minimum of trauma to the cord. I have had a slight recurrence on one side in the case of a very stout "baggage-man" who had a double inguinal hernia. The recurrence was on one side only. In this case I tied the sac's neck with a purse-string suture, and I included within the purse-string extraperitoneal fat tissue. As this fat tissue atrophied from pressure of the ligature, the ligature became loosened, and it is to this fact that I attributed the recurrence. About two years after the operation for the recurrence, there had been no further difficulty with the hernia. This man was killed in a railroad accident. I found at autopsy upon examination of the hernial wounds that the abdominal wall was intact.